

**Transition towards a sustainable charcoal sector in Tanzania: An actor perspective on potential innovations in the value chain**

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## **Introduction**

Charcoal is the key energy source for households in urban areas of Tanzania. In Dar es Salaam, more than 70% of households depend on it (Sander et al 2013). The urban population is growing at a rate of over 4% annually, and the demand for charcoal is on the rise. As a result, Tanzania's forests risk being depleted by 2028 (Mwampamba 2007). The Tanzanian charcoal sector offers income to several hundred thousand people. It is dominated by small-scale, unregulated production and informal trading. Only 20% of the charcoal is traded formally and generates tax revenues.

In this context, a project entitled “Transforming Tanzania’s Charcoal Sector” (TTCS)<sup>1</sup> is working to develop viable, legal, and pro-poor value chains for sustainably sourced charcoal in Kilosa District. In inducing these innovations in the charcoal production–consumption system, the project is explicitly guided by an normative orientation towards sustainability and poverty alleviation. The charcoal value chain is understood as an innovation system embracing all actors involved, their interactions, and their institutions. Markard and Truffer (2008) emphasise the key role of actors in innovation systems and call for more research into the factors influencing their decisions, and into how the actors interact with the innovation system.

We argue that in the charcoal sector, which is highly informal and dominated by small enterprises, human actors are key agents in driving transition processes. Accordingly, the present exploratory study aims to answer the following question: From actors’ perspective, what are the key factors enabling or hindering the adoption of incremental technical and social innovations that could eventually lead to transitions in Tanzania’s charcoal regime as intended by the project?

## **Conceptual framework**

In order to answer this question, the study draws on a human actor model that is inspired by Bourdieu’s theory of practice (Bourdieu 1977) and Giddens’ structuration theory (Giddens and Sutton 2009) and was developed by Wiesmann et al (2011). Moreover, the study relates to the conceptual framework developed by Leeuwis (2003) for understanding the complex reasoning of farmers when deciding whether to innovate their practices. These theories and concepts emphasise – to different degrees – the reciprocal influence between actors’ habitus (according to Bourdieu) and institutional contexts. We understand the value chain as a link between different human actors with their specific reasoning rooted in their means, meaning, and practices (see also Farla et al. 2012). This makes it possible to identify potential conflicts, but also potential synergies between the key factors enabling or hindering different actors in adopting technical and social innovations towards a sustainable charcoal sector.

## **Methods**

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<sup>1</sup> The project “Transforming Tanzania’s Charcoal Sector” (TTCS) was initiated and is funded by the Swiss Agency for Development and Cooperation (SDC). It is implemented by the Tanzania Forest Conservation Group (TFCG)/MJUMITA.

The exploratory study is based on a literature review (including national policies and strategies) and a field assessment conducted in November 2012. Actors involved in the charcoal value chain and its institutional framework were identified through a participatory actor mapping. Twenty group and individual interviews were held with representatives of actor groups, taking account of the diversity within these groups. During interviews, we developed cognitive maps and used open questions to grasp actors' networks and practices, as well as their perceptions of the current situation and attitudes towards proposed changes.

## Results

Preliminary empirical results reveal the following:

- Mapping factors enabling or hindering innovations along the value chain makes it possible to pinpoint potential synergies and emerging contradictions (Figure 1).
- The ways in which the various actors along the value chain perceive sustainability problems differ significantly. Reconciling the different views will pose a major challenge and will require social learning processes guided by the values of sustainable development.
- Differences between actors in terms of power and the diversity within actor groups require social innovations that address disparities to ensure that actors are not further marginalised.

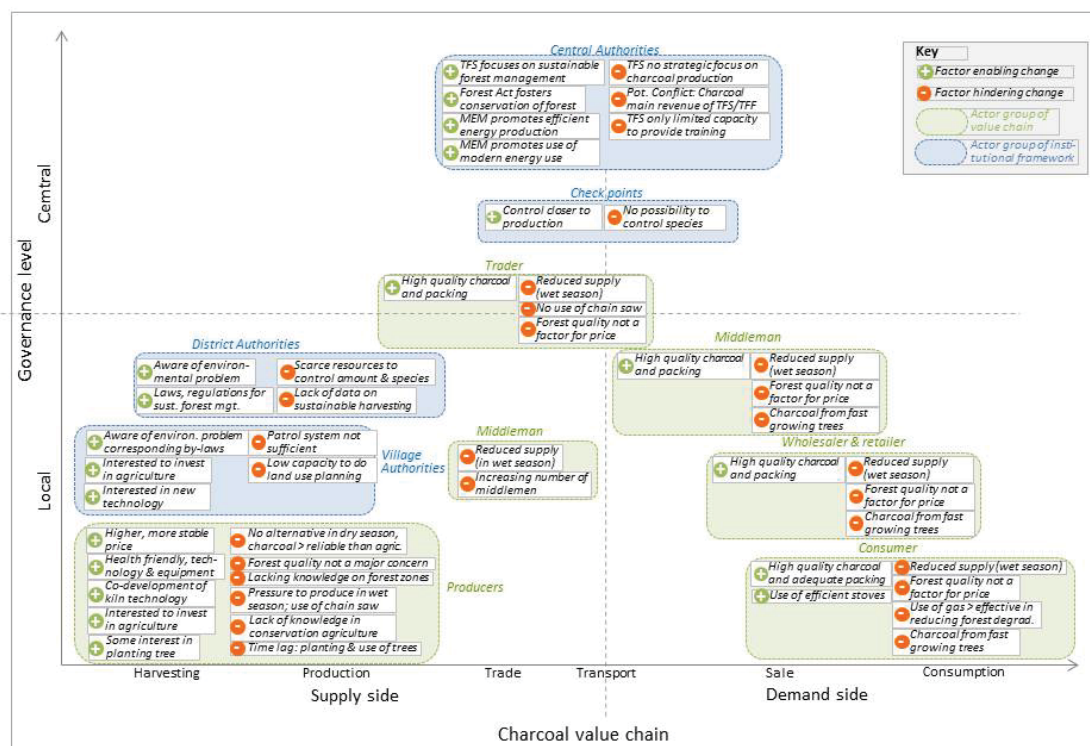


Figure 1: Factors along the value chain that possibly enable or hinder the transition towards sustainable sourcing of charcoal.

## Conclusions

- The TTCS project intends to establish a prototype of a sustainable charcoal value chain, with a view to achieving sufficient leverage to change the prevailing market regime. This study shows that one of the main obstacles to achieving this goal is likely to be the weak enforcement of laws and regulations. Due to the informal and individualised character of the charcoal sector, interplay between individual actors and formal institutions remain weak, reducing actors' possibilities to trigger institutional changes based on their own resources (see also Klerkx, Mierlo, and Leeuwis 2012). We argue that more radical economic and political modifications might be needed to enable the transition towards a sustainable wood-based energy supply in Tanzania.
- Integrating a human actor perspective in value chain and innovation system analyses seems a promising way of obtaining meaningful additional insights into transition processes. However, in the context of a more formal and developed economy, the human actor model would need to be complemented with an actor model that focuses on organisations (and enterprises).

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